

## REMARKS

Claims 1, 2, 6 to 8, 12 to 20, 23, and 24, as amended, appear in this application for the Examiner's review and consideration. Claims 13 to 16 have been withdrawn, as being directed to a non-elected invention. Claims 9, 10, 21, and 22 are canceled by this Amendment. Claims 3 to 5 and 11 were canceled by a prior Amendment. The amendments are fully supported by the specification and claims as originally filed. Therefore, there is no issue of new matter.

Claims 9, 10, 21, and 22 stand objected to under 37 C.F.R. 1.75(c), for allegedly not further limiting the claim from which they depend. In response, Applicant submits that claims 9, 10, 21, and 22 have been canceled, mooted the objection.

Claims 1, 2, 6 to 10, 12, and 17 to 24 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for the reasons set forth on pages 3 and 4 of the Office Action.

In response, Applicants submit that the presently claimed invention, as recited in previously presented claim 1, is directed to a method to produce uranium dioxide fuel in pellet shape for use in a light water reactor. The method recited in previously presented claim 1 comprises providing an arrangement, comprising porous uranium dioxide, infiltrating the arrangement with a precursor liquid, comprising silicon, and thermally treating the infiltrated arrangement. The step of thermally treating the arrangement comprises curing the infiltrated arrangement, converting the precursor liquid into a solid polymer, and thermally firing the cured infiltrated arrangement. The thermal curing thereby forms nuclear fuel, comprising an arrangement having a porous matrix of uranium dioxide, defining pores, and silicon carbide interspersed in the pores of the matrix of uranium dioxide.

With regard to how the pellet shape is formed, as will be recognized by those skilled in the art, uranium dioxide fuel is commonly a product of several manufacturing steps including pressing a uranium dioxide powder into a pellet shape. *See* the present specification, page 1, lines 9 to 11. Moreover, it is well settled law that "a patent need not teach, and preferably omits, what is well known in the art." *See Hybritech Incorporated v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, (Fed. Cir. 1986) (Citing *Lindemann Maschinenfabrik v. American Hoist and Derrick*, 730 F.2d 1452, 1463 (Fed. Cir. 1984)). Therefore, as one of ordinary skill in the art will understand how the presently claimed pellet shape is formed in light of the present specification and what is known in the art, the recitation in the claims of a pellet form or shape meets the requirements of 35 U.S.C. § 112,

second paragraph. However, to facilitate the early allowance of the claims, Applicant has amended claim 1 to recite that presently claimed method comprises providing an arrangement in pellet form.

With regard to the recitation of conversion of the precursor liquid to a second phase in claim 1, “such that the precursor liquid is converted to a second phase” has been deleted from that claim.

With regard to claims 6 and 18, those claims have been amended to recite that the curing of the infiltrated arrangement, comprises heating the infiltrated arrangement to a temperature between 180 and 400 degrees centigrade.

With regard to claims 7, 8, 19, and 20, those claims have been amended to recite that the firing of the cured arrangement is at a temperature of between 850 degrees centigrade and 1700 degrees centigrade.

With regard to claims 12 and 24, claim 12 recites that the infiltrating of the arrangement with the precursor liquid results in incorporation of the precursor liquid into a center of the arrangement, and claim 24 recites that the infiltrating of the arrangement with the precursor liquid comprises incorporation of the precursor liquid into a center of the arrangement. At page 4, the Office Action states that those claims are indefinite “because it is not clear whether the precursor liquid should be only in the center of the arrangement or in the center as well.” Applicant believes that statement in the Office Action is intended to mean that it is not clear whether the precursor liquid is incorporated into the center of the arrangement only or into other parts of the arrangement as well as the center.

In response, Applicant submits that a claim that recites that the infiltrating of the arrangement with the precursor liquid comprises or results in incorporation of the precursor liquid into a center of the arrangement clearly encompasses both incorporation of the precursor liquid into the center of the arrangement only and incorporation of the precursor liquid into other portions of the arrangement, as well as incorporation into the center. Applicant is not aware of any part of U.S. patent law that would require the scope of the present claims to be limited to incorporating the precursor liquid into either the center of the arrangement only or other parts of the arrangement, as well as the center of the arrangement and. If such a requirement is part of U.S. patent law, Applicant respectfully requests a citation to the pertinent statute or regulation.

Therefore, the present claims will be understood by one of ordinary skill in the art in light of what is known in the art and the disclosure of the present specification, and, thus, the present claims meet the requirements of 35 U.S.C. § 112, second paragraph. Accordingly, it

is respectfully requested that the Examiner withdraw the rejection of claims 1, 2, 6 to 10, 12, and 17 to 24 under 35 U.S.C. § 112, second paragraph.

Applicants thus submit that the entire application is now in condition for allowance, an early notice of which would be appreciated. Should the Examiner not agree with Applicants' position, a personal or telephonic interview is respectfully requested to discuss any remaining issues prior to the issuance of a further Office Action, and to expedite the allowance of the application.

No fee is believed to be due for the filing of this Amendment. Should any fees be due, however, please charge such fees to Deposit Account No. 11-0600.

Respectfully submitted,

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